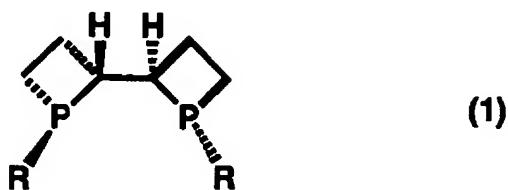


CLAIMS

1. An optically active diphosphetane compound represented by formula (1):

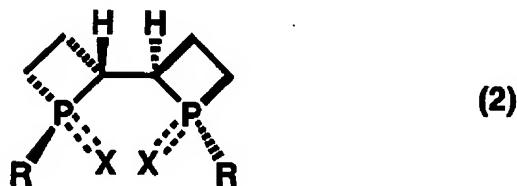
[Chem. 1]



(wherein R represents a linear, branched, or cyclic alkyl group having 2 to 20 carbon atoms).

2. A diphosphetane compound represented by formula (2):

[Chem. 2]



(wherein R represents the same as the above, X represents a boron trihydride group, an oxygen atom, or a sulfur atom, and == represents a single bond when X is a boron trihydride group or a double bond when X is an oxygen atom or sulfur atom).

3. A phosphetane compound used as an intermediate for producing the compound according to claim 2, the phosphetane

compound being represented by formula (3):

[Chem. 3]



(wherein R, X, and === represent the same as the above).

4. A transition metal complex comprising the optically active diphosphetane compound according to claim 1 as a ligand.